

Figure 1

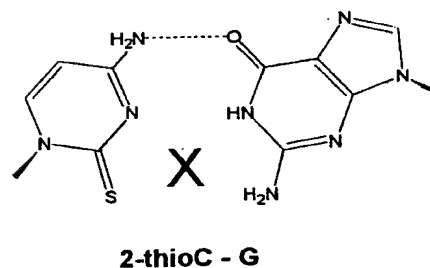
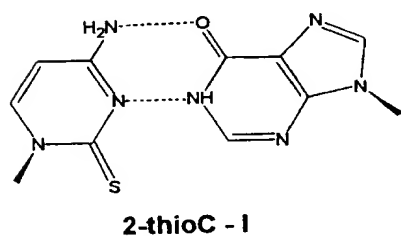
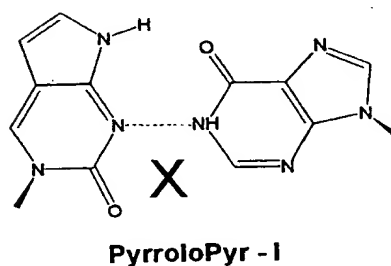
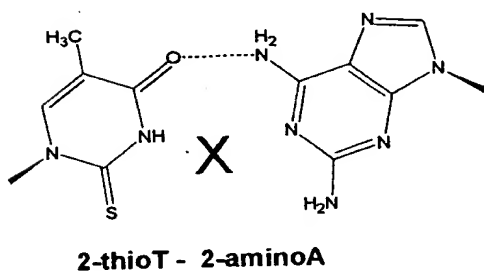
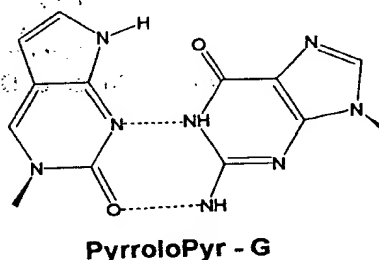
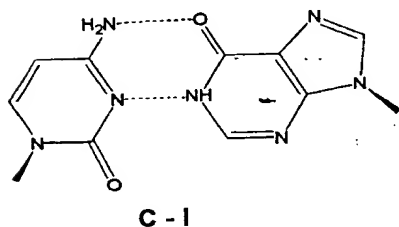
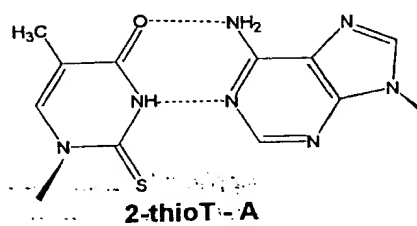
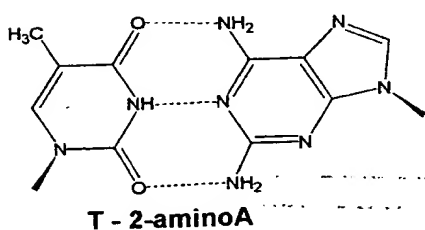
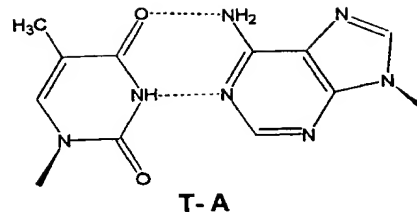
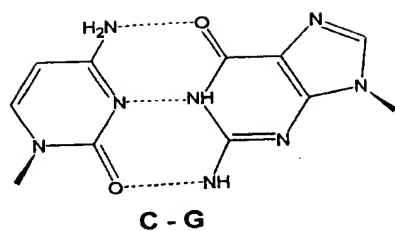


Figure 1 displays 12 histograms arranged in a single column, each representing the distribution of the number of non-zero elements in the vector x for a specific value of n . The histograms are labeled with n values: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, and 120. The x-axis for all histograms is labeled 'x' and ranges from 0 to 120. The y-axis is labeled 'count' and ranges from 0 to 100. As n increases, the distribution of x becomes more concentrated around zero, with the peak count increasing significantly.

5' -CGATAGGCTCTG →
3' -GCTATCCGAGACCTGACTTGACACCTGTT-5'

Bst DNA Pol. **Taq DNA Pol.** **MMLV RT**

dNTPs

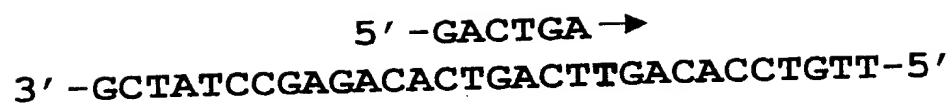
30mer Product →

12mer Primer →

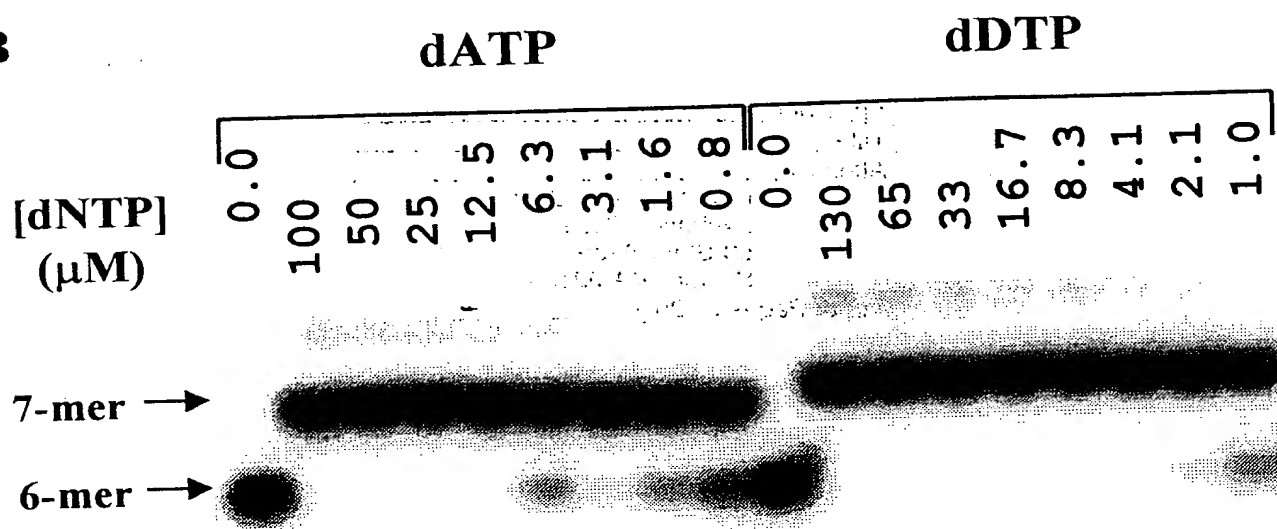
For each polymerase, the lanes are labeled with dNTP combinations: NONE, A,G,C,T; G,C,T; A,G,C; D,G,C,T; A,G,C,S; D,G,C,S.

Figure 3

A



B



C

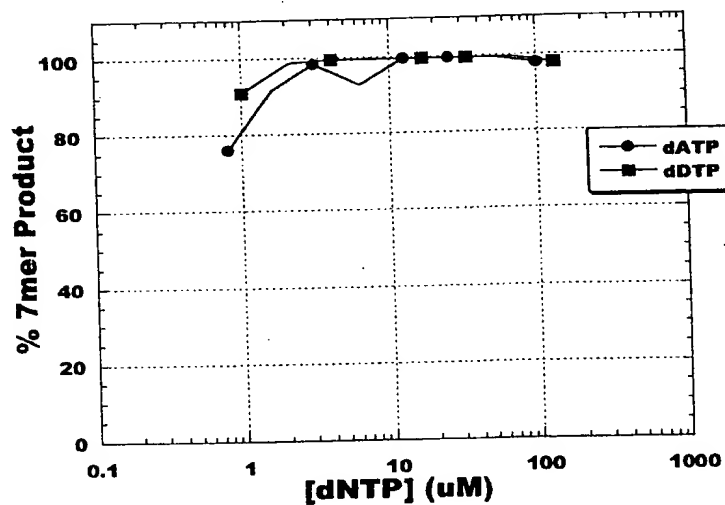
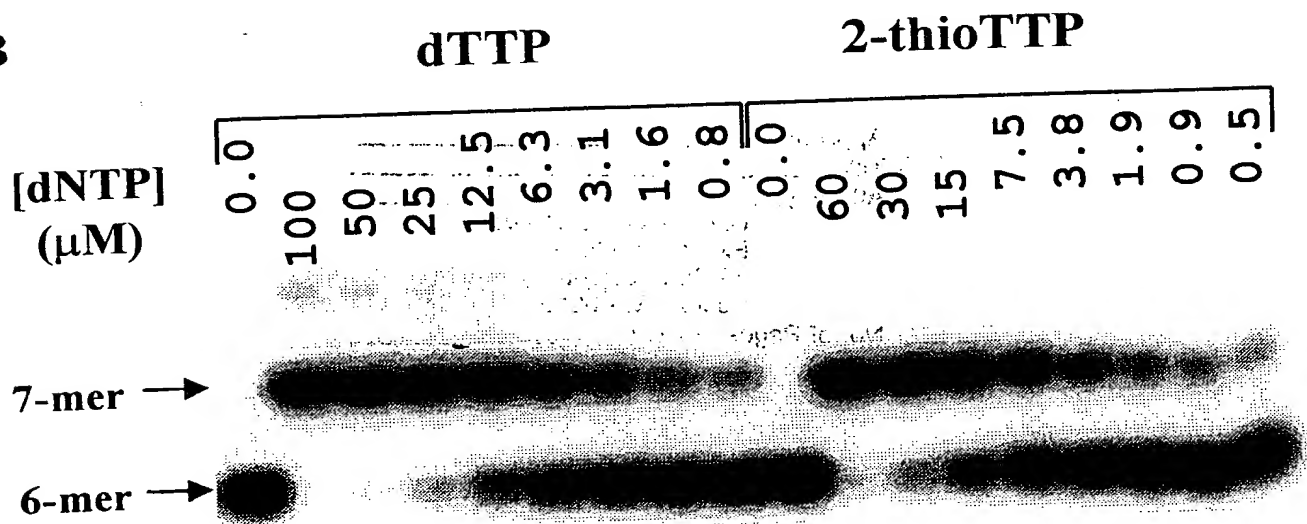


Figure 4

A



B



C

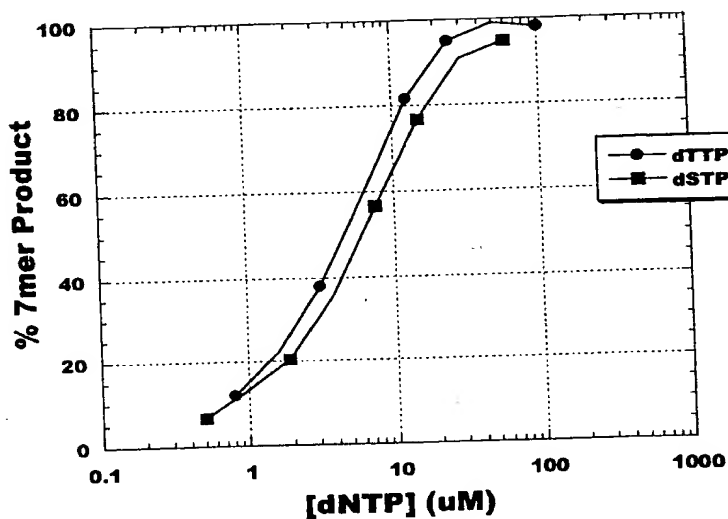
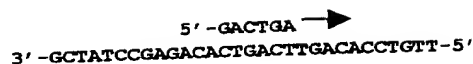
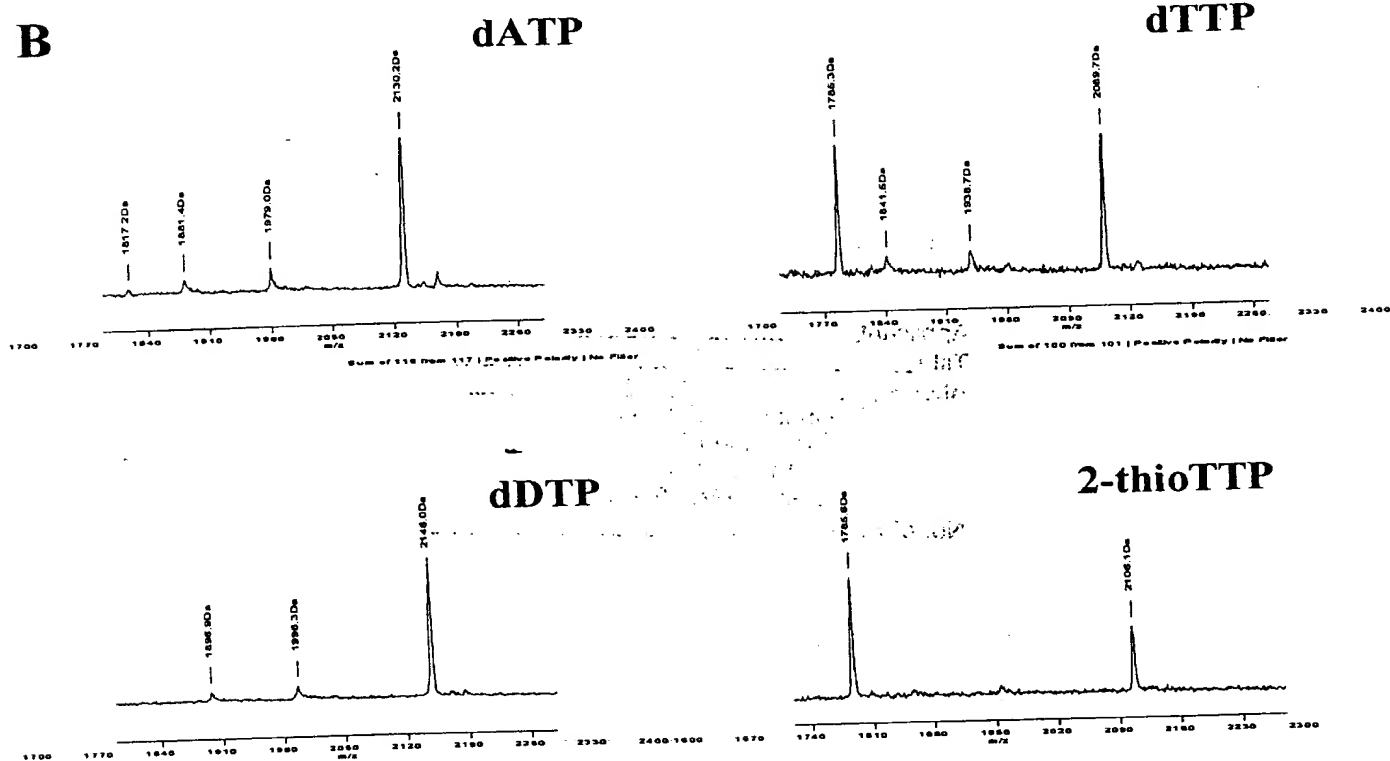


Figure 5

A



B



C

Extension Nucleotide	X-mer	Predicted m/z (Positive Ion)*	Measured m/z (Positive Ion)	Predicted Δ m/z	Measured Δ m/z
None	GACTGA	1816.3	nd	--	--
dATP	GACTGAA	2129.5	2130.2	+15.0	+15.8
dDTP	GACTGAD	2144.5	2146.0		
None	GCTCTG	1783.2	1785.4 ± 0.2	--	--
dTTP	GCTCTGT	2087.4	2089.7	+16.0	+16.4
d-2-thio-TTP	GCTCTGS	2103.4	2106.1		

Figure 6

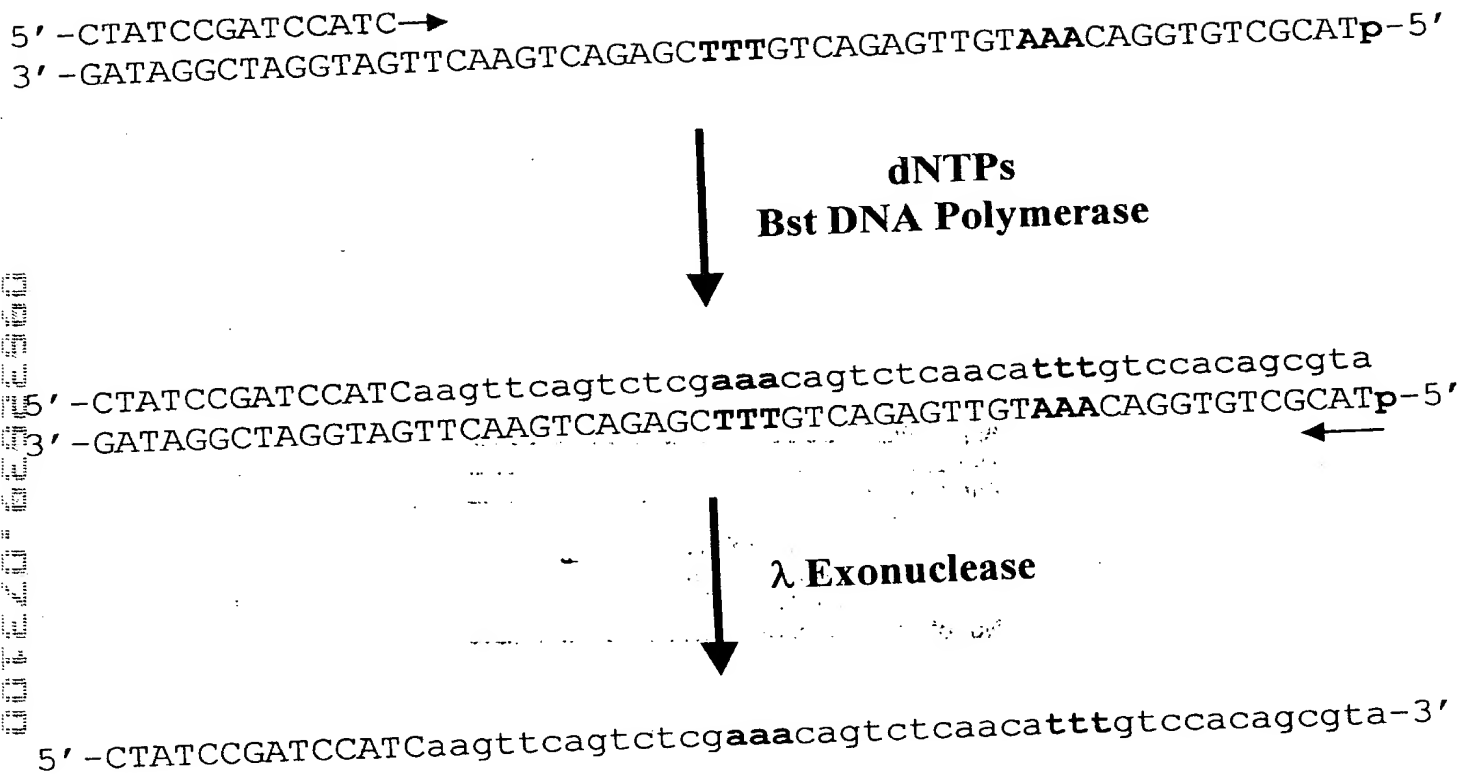
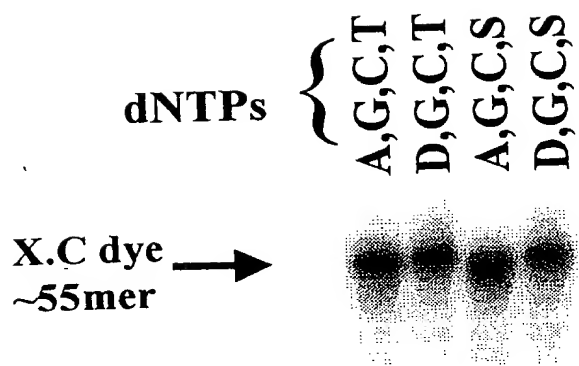


Figure 7



B.P dye →
~12mer

Figure 8

HP21AT

$\Delta G^\circ = -12.3$ kcal/mole at 37 °C
 $\Delta H^\circ = -82.5$ kcal/mole
 $\Delta S^\circ = -226.3$ cal/ (°K·mol)
 $T_m = 91.4^\circ\text{C}$

```

      10      20
5' -CTATCCGATCCATCAA      G
      GTTCAGTCTC A
      |||||
      CAAATCAGAG A
3' -ATGCGACACCTGTTTA      A
      50      40      30
  
```

HP21DS

```

      10      20
5' -CTATCCGATCCATCDD      G
      GSSCDGSCSC D
      |...|...|
      CDDGSCDGDG D
3' -DSGCGDCDCCSGSSSD      D
      50      40      30
  
```

HP26AT

$\Delta G^\circ = -3.8$ kcal/mole at 37 °C
 $\Delta H^\circ = -41.2$ kcal/mole
 $\Delta S^\circ = -120.5$ cal/ (°K·mol)
 $T_m = 68.8^\circ\text{C}$

```

      10      20
5' -CTATCCGATCCATCAA      C T G
      GTT AG CTC A
      ||| |||
      CAA TC GAG A
3' -ATGCGACACCTGTTTA      C T A
      50      40      30
  
```

HP26DS

```

      10      20
5' -CTATCCGATCCATCDD      C S G
      GSS DG CSC D
      |...|...|
      CDD SC GDG D
3' -DSGCGDCDCCSGSSSD      C S D
      50      40      30
  
```

HP28AT

$\Delta G^\circ = 0.1$ kcal/mole at 37 °C
 $\Delta H^\circ = -27.4$ kcal/mole
 $\Delta S^\circ = -88.6$ cal/ (°K·mol)
 $T_m = 36.1^\circ\text{C}$

```

      10      20
5' -CTATCCGATCCATCAA      C T CG
      GTT AG CT A
      ||| |||
      CAA TC GA A
3' -ATGCGACACCTGTTTA      C T CA
      50      40      30
  
```

HP28DS

```

      10      20
5' -CTATCCGATCCATCDD      C S CG
      GSS DG CS D
      |...|...|
      CDD SC GD D
3' -DSGCGDCDCCSGSSSD      C S CD
      50      40      30
  
```

0063630 073400

Figure 9

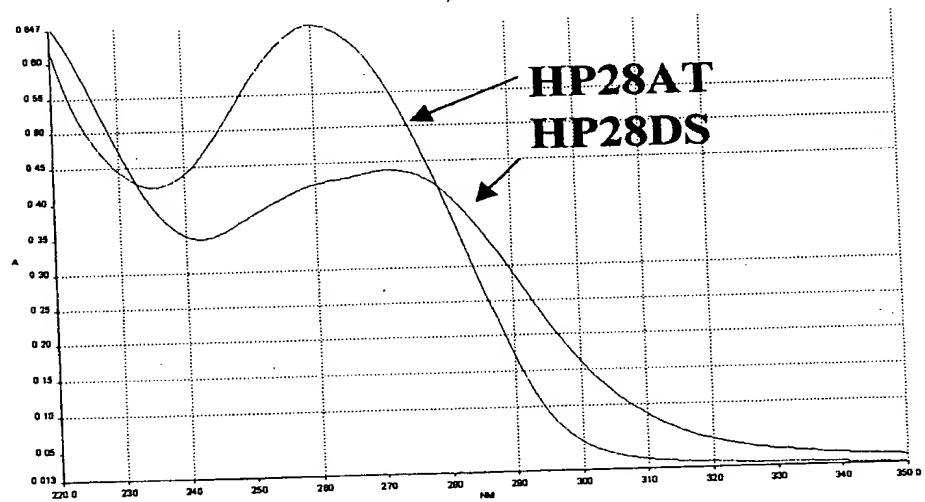
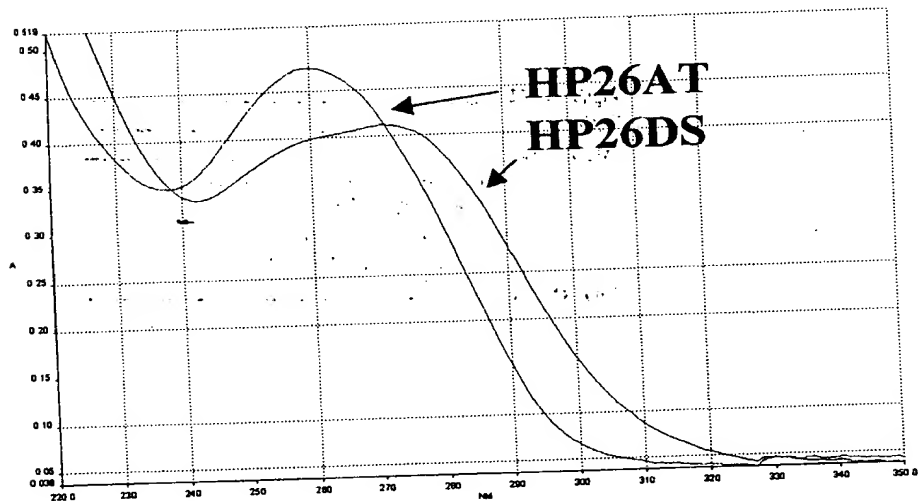
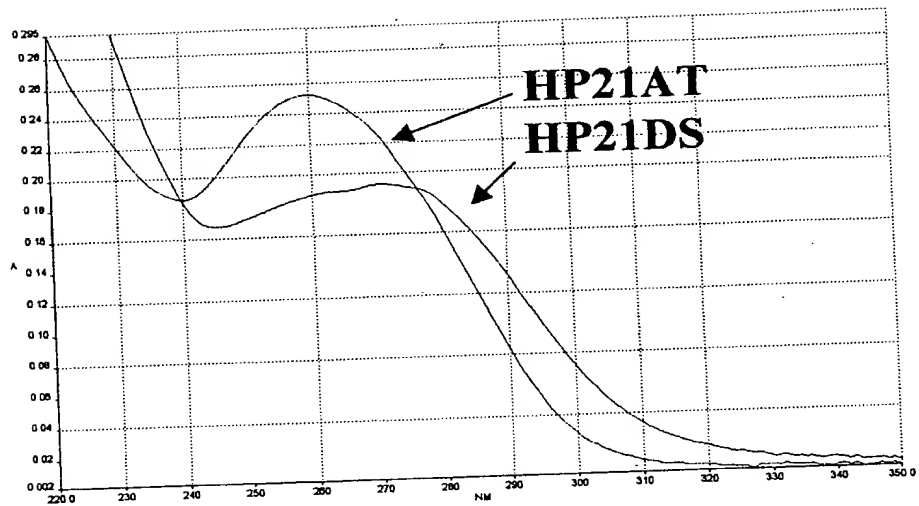
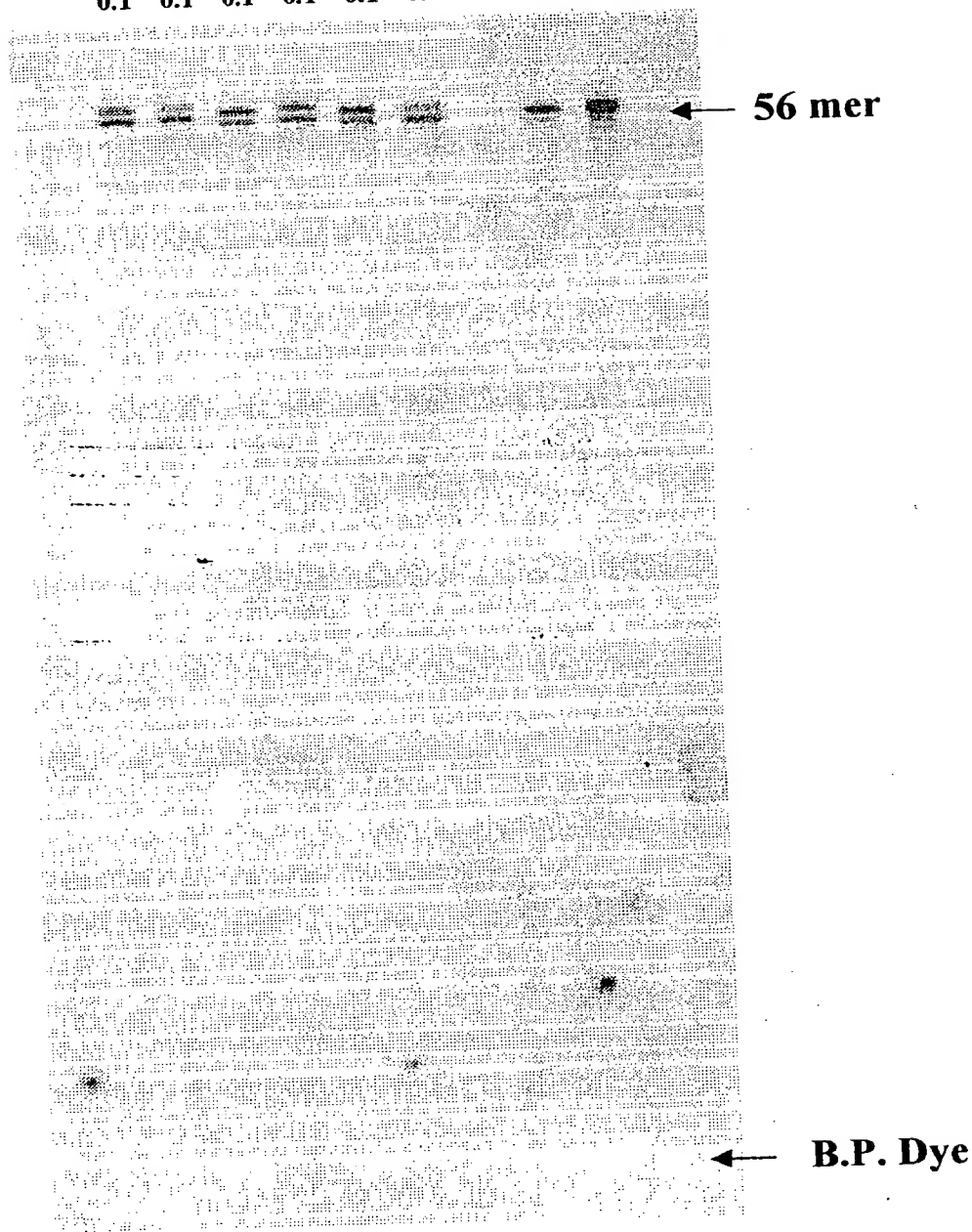


Figure 10

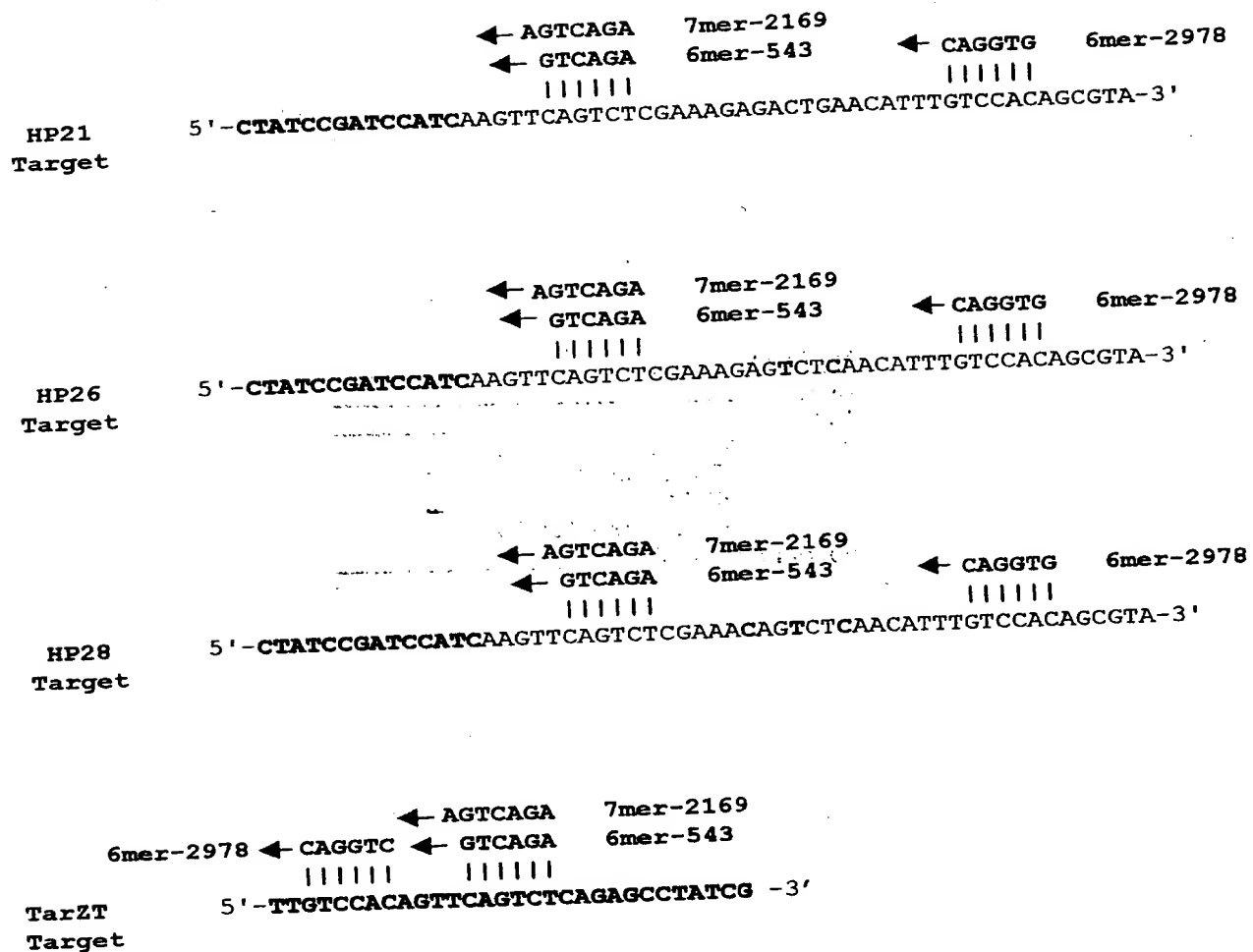
HP21		HP26		HP28		HP21			
A	T	D	S	A	T	D	S	A	T
Template DNA									
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2 (ug)



10% 7M Urea PAGE

00720-0292900

Figure 11



00420-02922960

[illegible]

7-mer 2169

7-mer →
6-mer →

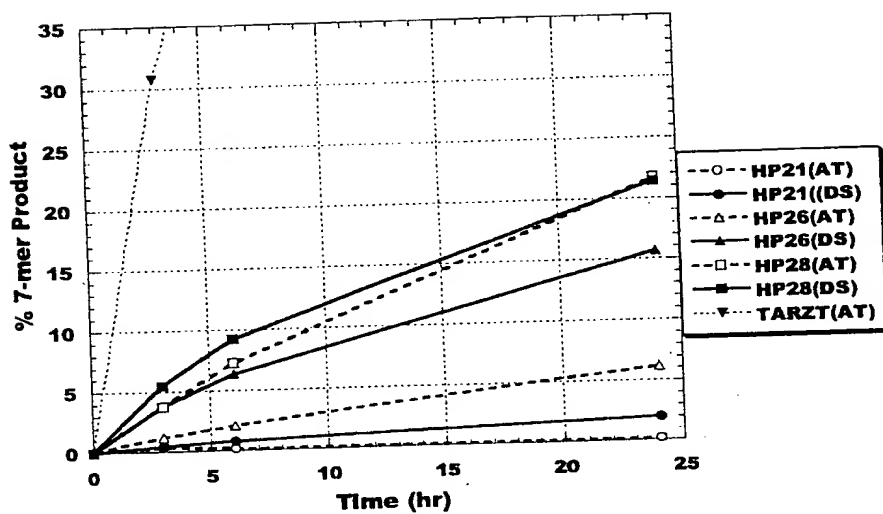
8-mer → [redacted]
7-mer → [redacted]

7-mer →

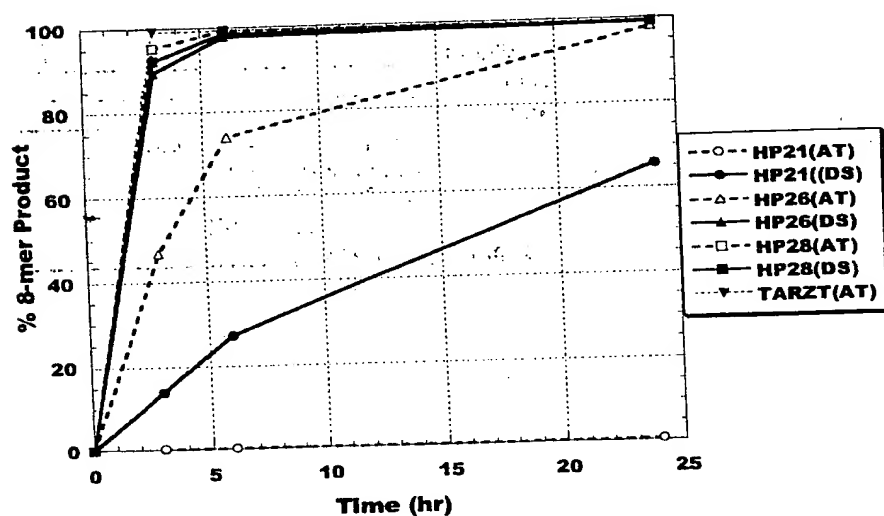
6-mer →

Figure 13

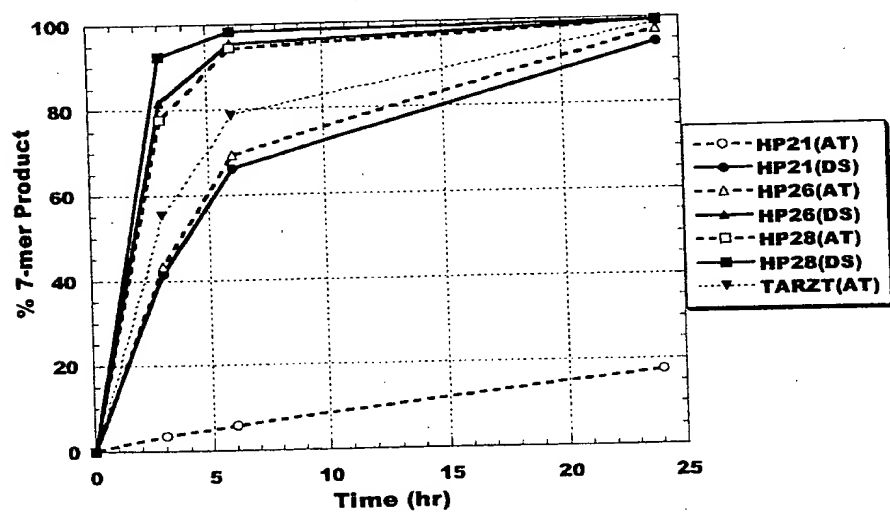
6mer-543



7mer-2169



6mer-2978



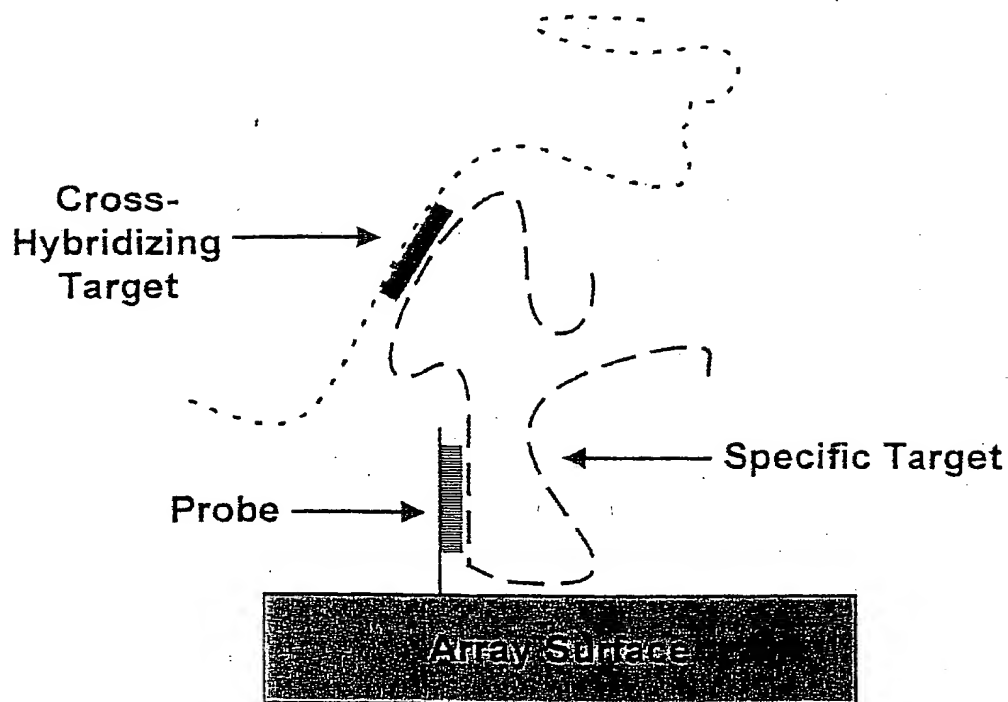


figure 14

00120" 02922900

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DNA Hairpin Structure (HP51)

HP51 DNA

$G^\circ = -12.3$ kcal/mole at 37 °C

$H^\circ = -82.5$ kcal/mole

$S^\circ = -226.3$ cal/ (°K·mol)

$T_m = 91.3^\circ\text{C}$

HP51 UNA

10 20
CCGATCCATCAA

GTTTCAGTCTC A

|||||

CAAGTCAGAG A

-----CA^ A

30

10 20
CCGATCCATCDD

GSSCDGSCSC D

|||||

CDDGSCDGDG D

-----CD^ D

30 Z

*in the
Predicted*

Figure 15

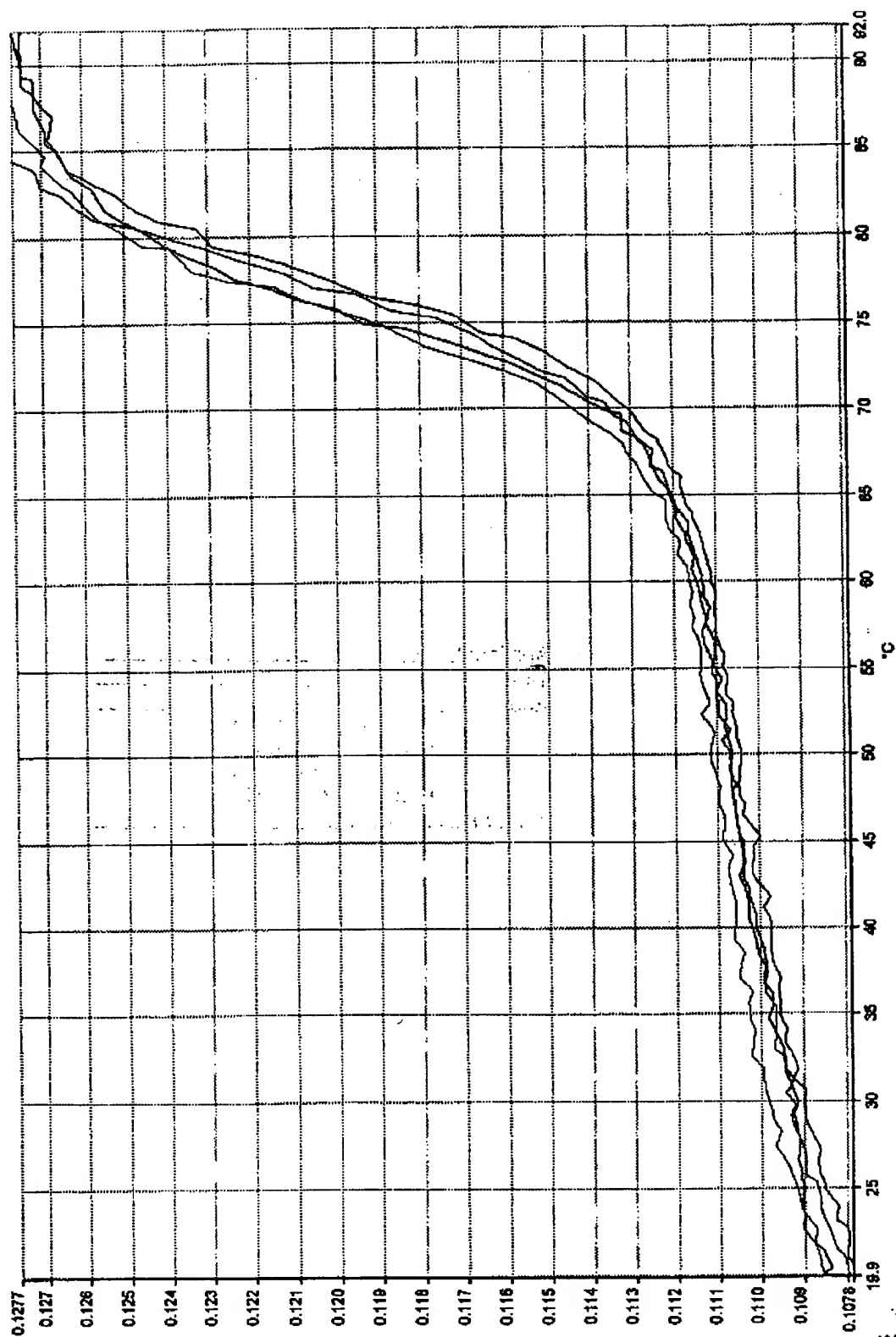


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Thermal Melting Profile of DNA (3.3 μ M) in 1x SSPE

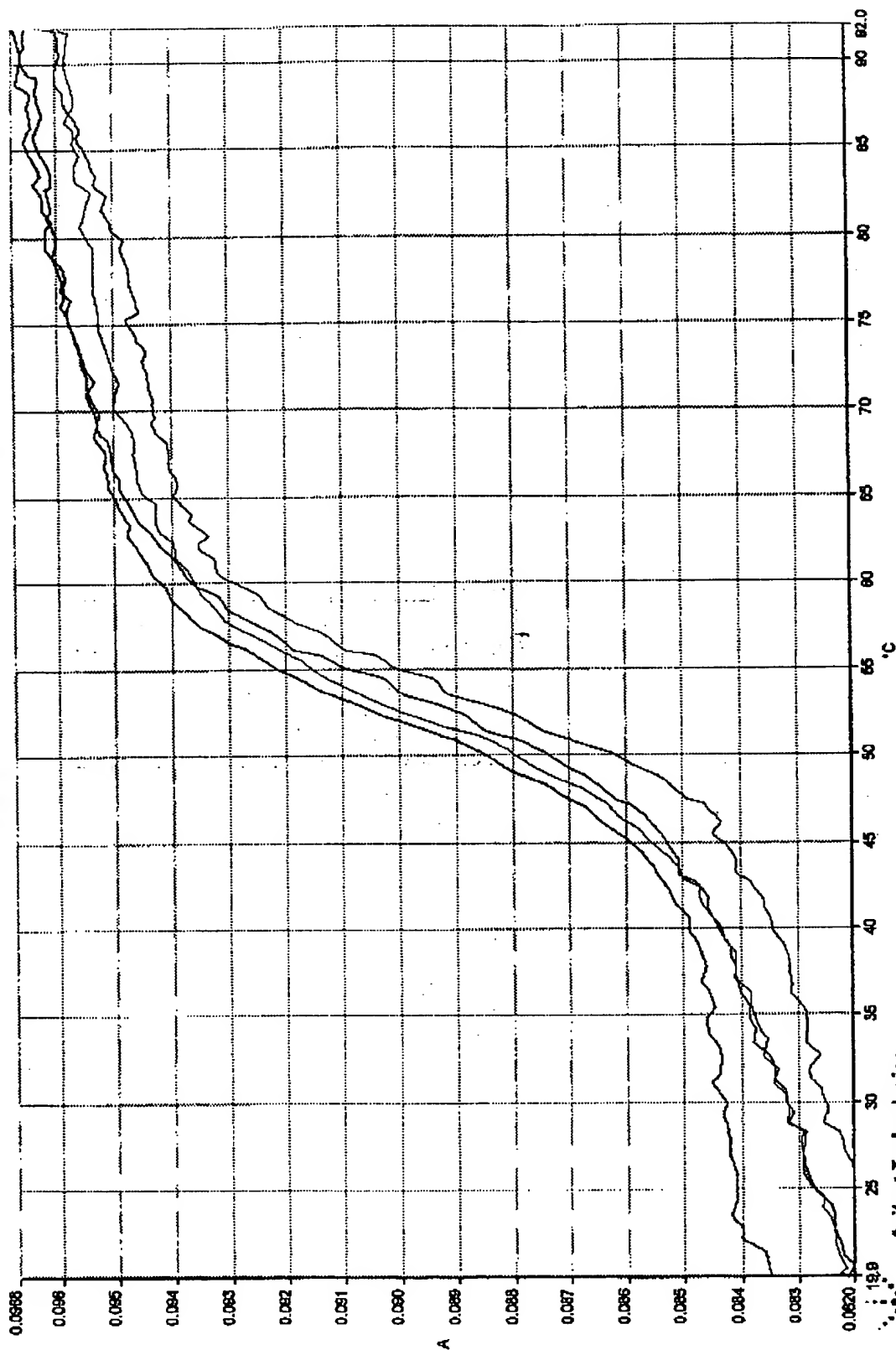


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Figure 16

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Thermal Melting Profile of UNA (2.6 μ M) in 1x SSPE

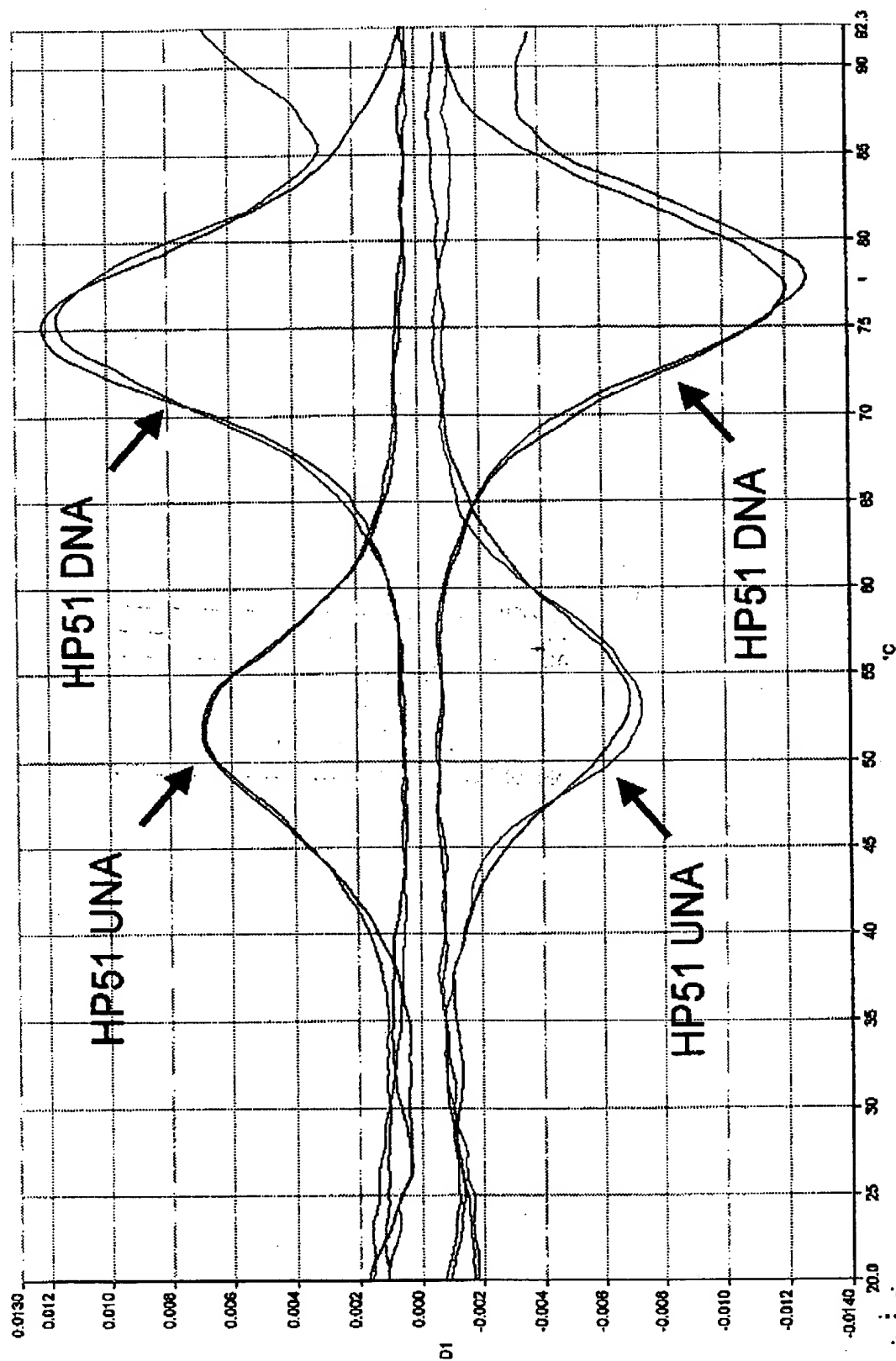


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Figure 17

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HP51DNA & HP51UNA (~3 μM) in 1x SSPE

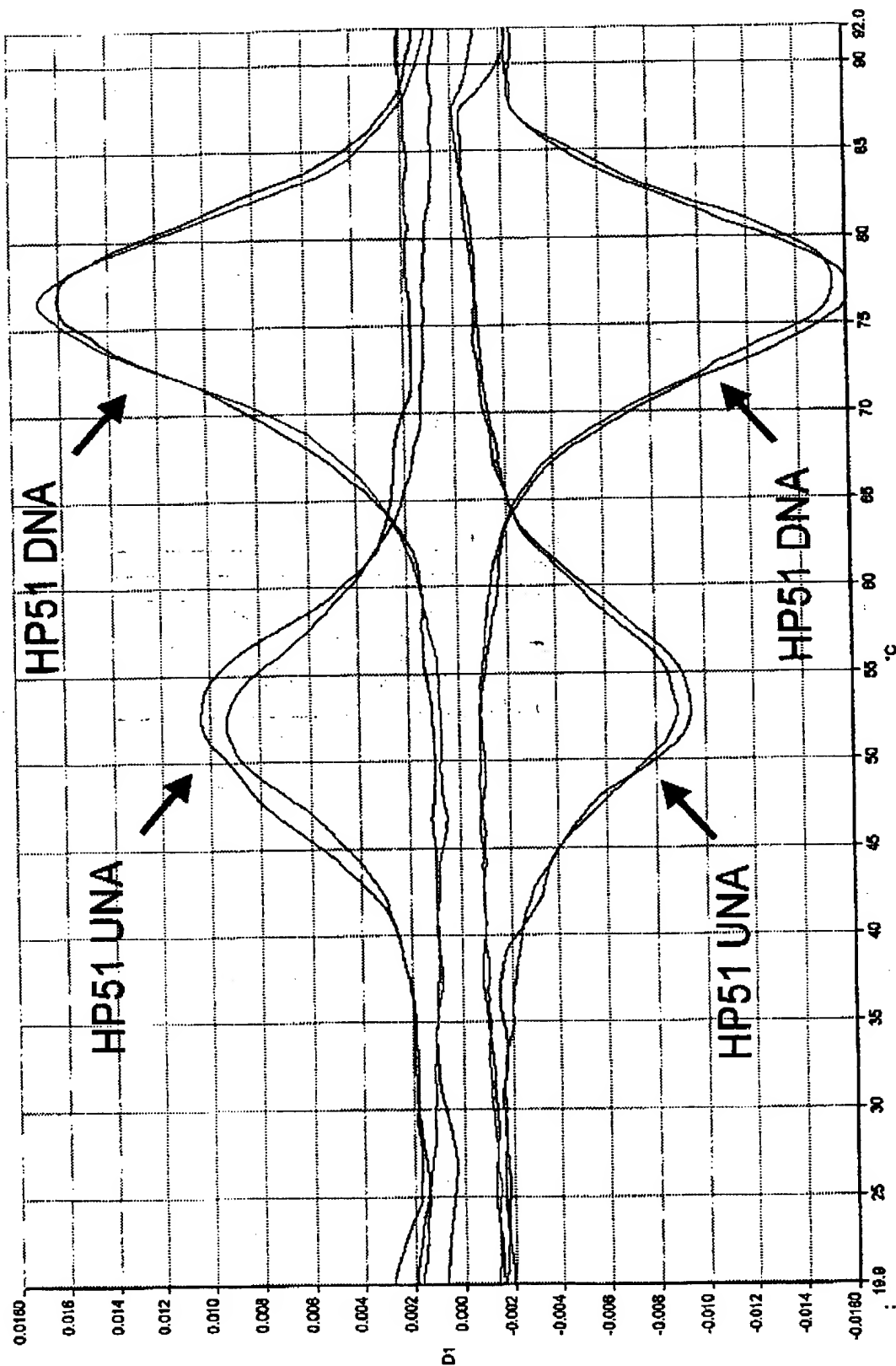


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figure 18a

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HP51DNA & HP51UNA (~0.45 μM) in 1x SSPE



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Figure 186

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Sample	Ramp Up 1 Tm	Ramp Up 2 Tm	Ramp Dwn 1 Tm	Ramp Dwn 2 Tm	Average Tm
HP51 DNA	75.0 °C	75.5 °C	77.0 °C	78.0 °C	76.4 °C
HP51 UNA	52.0 °C	52.0 °C	53.0 °C	54.0 °C	52.8 °C
Δ Tm	23.0 °C	23.5 °C	24.0 °C	24.0 °C	23.6 °C

Figure 19



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007620-00922960